PRUSSIA.

Area and classification.

Out of a total area of nearly 35 million hectars, Prussia has upwards of 8 million hectars classed as forest. (The hectar may be computed as 2½ English acres, the exact relation being 2·4711431.)

Of this, however, 53 per cent., or upwards of 4 millions of hectars, consists of private forests, and the remainder, with which we have more immediately to do, is divided into

a. State forests -	2,486,598	hectars.
b. Communal forests -	1,246,965	,,
c. Ecclesiastical ,, -	69,825	,,
Total -	3,803,388	,,

Equal to 9,508,470 English acres, or close upon 15,000 square miles; and of the area of State forests (upwards of 6,200,000 English acres) only a fraction over 4 per cent. is classed as waste or unproductive, although 10 per cent. is devoted to other purposes, which include the sites of forest houses and buildings, gardens, pasture lands allotted to the forest employés, &c., &c. The yield for 1871 of this great extent of woodland, the greater proportion of which (1⅓ million hectars, 3⅓ million English acres) consists of Scotch fir, pure or mixed, is estimated at 5,688,785 "*fest metres*," or 204,796,260 cubic feet, representing a yield of 2·4 *fest metres* of wood per hectar, or 34·5 cubic feet per English acre of the area actually devoted to the production of timber.

Yield.

This yield may appear small in comparison with that of other States, but the figures are taken from *Bernhardt's Forststatistik*, one of the most recent and reliable publications. I am, however, inclined to think that the apparent great difference is in some measure explained by more accurate returns for Prussia than some of the other States, and from the average yield being rigidly calculated on the total area devoted to the growth of timber whether actually stocked or not, whilst other states compute it on the area under or capable of producing timber only. A considerable extent of the area classed as *forest* in Prussia must consist of moors and barren wastes only now being actually planted up. I have endeavoured to explain this more clearly in the Remarks on the tabular statement given at page 68, in

which the average yield per English acre in several States is exhibited.

The money value or cash receipts by the sales of timber and firewood is 12¼ million of thalers (about 15*s.* per hectar), to which, however, has to be added upwards of a million and a half of thalers for forest products and miscellaneous receipts, raising the total income from the Government forests to close on 14 millions of thalers (2,100,000*l.*). Receipts and disbursements.

The disbursements, which are divided into ordinary and extraordinary, amount to 7½ million of thalers, leaving 6½ million thalers, or little short of a million sterling, as the actual profit for the year. When it is considered that this result is arrived at without trenching on the capital or stock of timber in the forests, which, on the contrary, is being increased and improved in every province of the kingdom, and that the indirect value to the people of many forest privileges, which they exercise free of charge, must be very great, not to mention the benefit to all in the shape of public recreation grounds and improved climate, some idea may be arrived at of the enormous value and benefit of a system of state forests and forest management as matured and worked out in Prussia. The ordinary expenditure includes pay of the forest establishments, all ordinary working charges, cost of the forest academies at Neustadt and Münden, and expenses connected with the preservation of the game, and other sporting charges, all of which are managed in Prussia and Germany generally by the Forest Department.

Under extraordinary expenditure are classed commutation of rights and servitudes (for which 75,000*l.* is allotted), purchase of land, contribution to public highways (as distinct from forest roads, which are provided for under ordinary expenditure), and supplemental charges for cultivation and the forest academy at Münden.

The forests, as already stated in the Report on the Hanoverian forests, form part of the finance or revenue department, and are presided over by an "*Oberland-forstmeister*" and "*Ministerial direktor,*" aided by a revenue councillor and joint "*Ministerial direktor*" and a numerous council or board, with suitable office establishments and secretaries for the various branches: Establishments.

The forest academies are at Neustadt Eberswald near Berlin, and Münden, in the province of Hanover (formerly the Hanoverian forest academy).

The *Oberland-forstmeister* is curator or governor of the academies, and at the head of each is an "*Ober-forstmeister,*" who is aided by a numerous staff of professors and assistant professors.

There is also a special control office of account, or accountant general for forests, at Potsdam, where all the forest accounts of the several provinces are finally checked and audited before going in to the general ministry of finance.

The 12 provinces of Prussia, several of which represent kingdoms of a few years ago, are divided into 30 circles (*Regierungsbezirk*), and to each of these an "*Ober-forstmeister*" (who may be classed as a conservator with us in India) is appointed to represent the forest department in the council of local administration (*Regierung*), and aided by councillors, and, as we have seen in Hanover, by the *Forstmeisters*, as a board, to represent forest interests in the government, and administer the department to the best advantage. Next in order come the *Forstmeisters* (corresponding to our deputy conservators), numbering 108, in charge of divisions with an average area of 25,000 hectars, and then the executive officers, 706 *Oberförsters*, with charges averaging about 3,000 hectars, to each of which is attached a *Forstrendant*, or collector of forest revenue, and 3,646 *Försters* (or overseers), with ranges of from 500 to 1,000 hectars. The respective duties of all grades have been detailed in the portion of this report devoted to Hanover, which province is included in the foregoing statement of the area, yield, &c., of the Prussian forests.

Forest academy at Neustadt-Eberswalde.

I visited the Forest Academy at Neustadt-Eberswalde, and had a most interesting conversation with the director, "*Herr Ober-forstmeister*" Danckelmann, on various subjects connected with forestry in Europe and India. He is assisted by a staff of seven professors with assistants, and there is an experimental garden attached to the academy, with *Oberförster* Bernhardt in charge of the strictly technical portion, and other gentlemen for the meteorological, zoological, and chemical sections. The number of students at the academy averages 65. Oberförster Bernhardt kindly accompanied me round the gardens, and pointed out everything of interest, including a building where the seed is dried and separated from the cones, known as a "*Sammendarre*," extensive seed beds of spruce and fir sown in parallel lines with the help of boards specially adapted for the purpose, which ensure regularity and the seed being all at the same depth; seed beds of willow, and treatment of the seedlings when transplanted; and examples of trees of every description for botanical study, including many of the rarer descriptions for the more advanced students.

Professor Dr. Altum, the successor of the well known entomologist Ratzeburg, author of a large work on insects destructive to trees and timber, accompanied me through the

museum, which is rich in specimens of all sorts of birds, animals, and insects found in the forests, very neatly arranged. In cases where the animal or insect does damage to trees, specimens of the branch, bark, leaf, root, or cone in a healthy state and after being attacked are exhibited close to each, so that the student can see at a glance the nature of the damage and connect it with the animal which causes it. Thus we have squirrels, rats, beavers, mice, set up to represent nature, gnawing the bark, grubbing at the roots, &c., &c. Insects are shown in the several stages of their existence, larvæ, chrysalis, caterpillar, moth, with their ramifications in the stem or branches of the tree. These, with specimen blocks of almost all descriptions of timber, form a most instructive and interesting collection, in which much time could be spent with advantage.

Time did not admit of my visiting the forest revier attached to the academy, which is chiefly remarkable for the growth of Scotch fir and spruce in the face of great natural difficulties, on a poor sandy soil and repeated ravages of the beetle.

There is a similar academy at Münden, which I did not visit, with about the same number of students.

Qualification and nature of studies required from forest candidates.

Nothing struck me as more remarkable than the extent and varied nature of the studies required from forest candidates or probationers in Prussia, and the number of years they are content to spend, first in studying and then in waiting for an appointment. The would-be Oberforster, which is the lowest of what we would call the "gazetted appointments," must, after passing certain terms at a Government school of the first class, spend a year with an "Oberforster" in a revier, and then pass an examination as forest pupil, after which there is a two years' course at a forest academy and an examination in scientific forestry, land surveying, &c., on passing which the pupil becomes a "*Forst-kandidat*"; then another two years' practical study, during at least nine months of which he must actually perform the duties of a forester, after which comes the final Government examination, on passing which he enters the grade of *Oberforster-kandidat.* The difference betwixt the two examinations is explained to be that the first tests the candidate's knowledge of theoretical forestry and cognate sciences, whilst the latter tests his ability to apply what he has learnt and capability for employment as Oberforster and in the higher grades.

After passing the final examination the "Oberforster-kandidat" is employed as an assistant in the academies and

control offices, in making forest surveys, and working plans, and sometimes acting in charge of a revier, receiving certain daily or weekly allowances whilst so employed. After five or six years of this probation he may look forward to being permanently appointed.

Thus we have at least five years spent in study and another five in probation; the former without any pay, and the latter only with meagre allowances, whilst actually employed, before the would-be forest officer is installed; and the time is generally much longer. Yet so great is the desire for Government service, and particularly forest service, in Prussia, and indeed in Germany generally, that there is no lack of competitors.

A certain proportion (one-third) of the Oberforster's appointments in the old Prussian provinces is given to members of a military institution, founded by Frederick the Great, known as the mounted *Feldjäger Corps*, whose duties correspond somewhat with those of our Queen's messengers, but are mainly intended for use in the time of war.

Unless in very exceptional cases the oberforster is not promoted to the higher grades unless he has undergone a further two years' curriculum at a university and passed two examinations, known as "Regierungs and Forst Referendariats Examen" and "Assessor Examen," but, if I mistake not, these can be studied for and passed during the time of probation as Oberforster-kandidat. The qualifications for admission into the subordinate grades, such as forester, subforester, and overseer, which are included under what is called the "Forst Schutzdienst," or forest conservancy, or protective establishments, have, like most things in Prussia, a military tendency. Candidates, after a two-years' practical course in the forests, enter a Jäger battalion, and bind themselves for 12 years' service. In case of good behaviour they are allowed to pass the Jäger's examination after one year's service, before a forest officer, but it is not clear to me what they gain by this. After an average of three years' service they obtain leave, and are employed in the forests as "Hülfsjäger," or assistant huntsmen or gamekeepers. After eight years they must have passed the foresters' test, which consists in a six months' probation as a forester or overseer, in charge of a tract of forest, and an oral and written examination. On the expiration of the 12 years' term of service they receive their final discharge from the Jäger corps and certificate entitling them to employment according to seniority in the forest conservancy establishments. The appointments are much sought after, and for the year 1867 there were 221 certified candidates for 145 vacancies; but

many are absorbed by employment in communal and private forests, and doubtless the war has since thinned the ranks of the Jäger corps, and put an end to the aspirations of many a would-be forester by death or wounds.

Forest law

Owing to the rapid growth and development of the Prussian kingdom of late years, there cannot be said to be any forest act or code of forest laws for the whole kingdom. Each province has still its own forest act or regulations, and it will probably be found very difficult to introduce one general code, although I have little doubt, from what I know of the Prussian character and love of uniformity and order, that it will be done ere long. In some provinces the Government has a certain legal status and *say* with regard to the management of communal and even private forests; in others it has none. It would serve no purpose to detail here the exact state of things in this respect.

I visited no forests in Prussia with the exception of those in Hanover, but have thought it right to enter into this brief statistical notice considering the vast area and yield of the forests and the excellence of the system under which they are administered.

I am mainly indebted for a knowledge of what I have here described to notes made during my visit to Neustadt-Eberswalde and "Bernhardt's Forst Statistik Deutschland," a work recently published in Berlin, and containing much valuable information.